



FAY, SPOFFORD & THORNDIKE, LLC

Engineers • Planners • Scientists • Landscape Architects • Surveyors

15 Broad Street, Suite 301
Boston, MA 02109
Toll Free 800.835.8666
Tel 617.723.8882
Fax 617.723.9995
www.fstinc.com

September 15, 2004

Mr. Edward Starr, Chairman
Town of Arlington Transportation Advisory Committee
Arlington Redevelopment Board
730 Massachusetts Ave.
Arlington, MA 02476

Subject: Peer Review– Symmes Redevelopment Plan Traffic Impact Study and Mitigation Plan

Dear Mr. Starr:

Fay, Spofford & Thorndike (FST) is pleased to submit this peer review letter to assist the Town of Arlington in evaluating the traffic impacts of the Symmes Redevelopment Project. It is our understanding that the development includes, at full buildout, 255-265 condominium units and a 40,000 square foot medical office building on the existing 18-acre former Symmes Hospital site that is currently accessed via Hospital Road and Woodside Lane.

A senior staff person from FST attended a neighborhood meeting organized by the TAC on September 8, 2004. He also visited the project site and all potentially affected streets/intersections to gain a better understanding of the real and perceived traffic and safety issues. Specifically, this letter addresses the:

- *Symmes Hospital Redevelopment – Transportation Overview* (Howard/Stein-Hudson Associates, Inc., September 2004) – referred to from here on as ‘the HSH Study.’ HSH also provided:
 - Electronic copies of Build traffic analysis conducted with and without the use of Woodside Lane;
 - An electronic copy of a proposed modifications to the traffic signal plan at the intersection of Summer Street with Brattle Street, soon be reconstructed as part of the Summer Street Improvement Project;
 - An electronic copy of the proposed mitigation plan and its conformance to the recommendations of the Symmes Advisory Committee; and
 - An electronic copy of graphics showing the travel time routes studied.

This peer review was also performed within the following context:

- *Article 8, Town of Arlington Off Street Parking and Loading Regulations;*
- *Town of Arlington Symmes Advisory Committee – Recommendations to Special Town Meeting, May 5, 2003; and*

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➤ *Symmes Hospital – Preliminary Transportation Findings*, VHB, Inc. August 21, 2002.

Executive Summary

It is concluded that the potential site traffic impacts have been adequately and conservatively estimated in the HSH Study. As far as traffic mitigation goes, the Proponent has indicated it is committed to fulfilling the requirements of the Symmes Advisory Committee. While there is room for modifying the mitigation commitments to address neighborhood -- see discussion further on -- by and large, the commitments proposed are reasonable and workable.

Task 1 - Transportation Overview Study

1.1. *Collected Traffic Data:* evaluate the appropriateness of counts with respect to day and time, location, seasonality differences, etc.

Counts were performed in accordance with typical traffic data collection procedures. Traffic data was collected on Tuesdays to Thursdays, typical weekdays for performing traffic counts. Specifically, the data collection dates were March 4, as well as Tuesday and Wednesday May 25 and May 26, 2004. Schools were in session when the counts were performed. According to MassHighway seasonal traffic volume correction factors, traffic volumes recorded during the month of March are 2% higher than average annual traffic, and May volumes are nearly 9% higher than average annual traffic volumes for the types of roadways counted.

As the HSH study did not lower the volumes counted, the 'base case' count data used is conservative, or on the high side. The study area involved 10 intersections and 10 automatic traffic recorder count locations. We believe the study area is large enough to address the traffic impacts anticipated from the site.

1.2. *Crash Histories:* determine if there are any patterns or trends that may be correctable.

FST checked the crash data summary presented in the HSH Study against our own files of MassHighway data. The HSH study indicates, and we concur, that none of the intersections where traffic data was collected have historical crash rates that exceed statewide rates for unsignalized intersections. A review of crash rates indicates that the narrow private streets and closely spaced homes in the area are effective 'traffic calming' measures in and of themselves. However, the measured and observed speeding on Oak Hill Drive, posted at 25 mph and driven at speeds well in excess of 30 mph is a problem. Oak Hill Drive is wider than most of the north/south local streets in the area and serves as a shortcut between Summer and Ridge Streets. Narrowing of Oak Hill Drive and/or 'silent policemen' variable message signs (see below) might be considered. Speeding was also observed on Summer Street, also posted at 25 miles per hour in the study area.

Field observations, consistent with the HSH study traffic operations analyses, indicate that during peak hours motorists can become frustrated making left turns from the unsignalized cross streets of Oak Hill Drive and Grove Street. Limited sight distances at some of the intersections (e.g., Grove Street at Summer Street) in the area should be addressed. Keeping

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potential safety enhancements environmentally-friendly will be challenging. In such constrained areas, regular trimming of hedges or vegetation may be a solution. More costly solutions include relocating utility poles or converting to underground utilities at corners where sight lines are problematic.

The proposed Summer Street modifications west of the Symmes development site including the intersection of Summer Street with Brattle Street and Hospital Road are expected to improve both operations and safety.

1.3. Existing Capacity of Intersections: evaluate how well the Level of Service results replicate current conditions, and if the geometric, signal timing, and capacity adjustments are reasonable.

The existing conditions FST observed during the PM peak period appear to be reasonably consistent with the analysis results summarizing existing condition operations. For example, left turns from unsignalized intersections approaching Summer Street were difficult to make during peak hours (e.g., Grove Street approaching Summer Street and Massachusetts Avenue, and Oak Hill Street approaching Summer Street).

A review of the capacity adjustments indicate they are reasonable to consider for mitigation.

1.4. Trip Generation Calculations: evaluate the completeness of the results, including any deductions for mode split, etc.

Trip generation calculations summarized in the report and contained in the Technical Appendix were conducted using the ITE Trip Generation 7th Edition, the industry standard for calculating vehicle trip generation. According to the VHB report on traffic impacts of site development options, the option evaluated generates approximately 70% as many trips as the lowest generating of the options.

An independent check of the trip generation calculations indicates they were performed correctly.

We note the HSH analysis was for 275 dwelling units, while the report references 250-265 units. The use of a higher-than-expected number of units makes the base trip generation calculation conservative. Additionally, the HSH Study assumed the average trip generation rates rather than the fitted curve trip generation results. This makes the trip generation figures analyzed more conservative as, in this particular case, the average rate calculation is higher than the fitted curve calculation.

The most conservative approach to trip generation would have been to use the ITE rates directly without any adjustments. Nonetheless, reasonable adjustments (lowering of trip rates) were made for some transit and bike/walk mode use based on a combination of the 1990 and 2000 Journey to work census data information. ITE recommends use of local data to adjust its trip generation rates -- this is an example of a local adjustment. The HSH study that assumed 6-10% non-auto modes from the 2000 census data for the census block in which the Symmes

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development site is located. This assumption, given the existing transit service in the area is not unreasonable. Because the MBTA 67 bus route only provides outbound service to the site, the HSH study mitigation section indicates that the Proponent will 'work with the MBTA to modify its existing services to the site'. A commitment to work with the MBTA may not be enough to encourage strong transit use to and from the Symmes site and we recommend this commitment be strengthened.

1.5. *Trip Distribution and Assignment of Trips:* evaluate the assumptions based on US Census Journey-to-Work data and the assignment of trips to roadways and determine if they are reasonable. Assess if appropriate time surveys have been conducted and if their results are reasonable.

Two distribution patterns were assumed; one with access to Woodside Lane and the other without access to Woodside Lane. Within the context of the regional highway system and the available route choices, we conclude the assignments for both options were done reasonably and tend to reflect the distribution patterns of traffic on other streets in the area. However, we conclude some trips should be assigned to Grove Street under Option 1 and Woodside Lane under Option 2 (see attached presentation concerning peer review).

Because the analysis only 'netted out' existing vehicle trips at the Hospital Road intersection with Summer Street, the analysis is conservative at all the other off-site intersections evaluated, as existing trips are double-counted at the other off-site locations.

1.6. *Background Traffic:* evaluate the assumed level of future traffic growth and determine if it is reasonable for both regional growth and local development.

Background traffic was assumed at 0.5% per year, even though historical traffic count data indicates volumes have been declining in recent years. We believe the 0.5% per year is a reasonable estimate of background traffic growth for a fairly stable community like Arlington and consistent with future traffic growth estimates made by the Central Transportation Planning Staff. The historical traffic volume data from 2000-2004 indicates that Summer Street traffic has declined since the year 2000. Traffic volumes within MassHighway District 4, where Arlington is located, generally declined by 2% during 2003.

At a recent meeting with neighbors, it was indicated that a new park will be opening to the west via Summer Street and 20 residential units have been approved for construction. These two developments, while not specifically called out in the study, are not expected to bring background traffic growth beyond the 2.5% assumed in the HSH study over the next 5 years.

1.7. *Future Capacity Analysis of intersections:* evaluate the results and determine if they are reasonable.

The analyses conducted were found to be reasonable for the two optional choices for site access -- Option 1 - retain the Hospital Road and Woodside Lane accesses, or Option 2 - provide only one vehicle access point to and from Hospital Road.

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As noted in the attached presentation, the analyses of Grove Street at Summer Street and Massachusetts Avenue and Summer Street at Oak Hill Drive and Cutter Hill Road, could be modified slightly to reflect a slightly different trip assignment than assumed for Grove Street under Options 1 and 2 and Oak Hill Drive under Option 2.

1.8. Pedestrian, Bicycle and Transit: evaluate if the study has adequately considered the pedestrian, bicycle and transit access and circulation.

While the HSH study addresses pedestrian, bicycle, and transit access and circulation, other measures should be taken to ensure the site will adequately address reductions in vehicle traffic. These measures include:

- At the combined intersections of Hospital/Summer/Brattle:
 - Provision of a sidewalk on the entire north side of Summer Street between Brattle and Oak Hill Drive.
 - Provision of an additional cross-walk on the Hospital Road approach to Summer Street (access to MinuteMan Bikeway).
- Provision of a cross-walk from the northwest corner of Brattle Street to the southeast corner of Brattle Street with additional pedestrian signal heads with pushbuttons and a new pedestrian ramp on the corner.

1.9. Mitigations: evaluate the proposed mitigations and determine if they are appropriate to improve deficient conditions, both existing and future conditions caused by the project, and if any additional mitigations are necessary. Re-analyze selected intersections to see if there is a discrepancy. Evaluate the adequacy of data and analysis to determine the reasonableness of the mitigations.

The HSH study indicates either of the two access strategies -- i.e., with and without the Woodside Lane access -- are acceptable to the Proponent. The SAC indicates that no more than 10% of the trips from the site should be using the Woodside Lane access. An examination of the Woodside Lane historical crash data indicates approximately 1 reported crash per year on it. Due to its small volume of 250-580 vehicles per day (the HSH study indicates approximately 252 vehicles per day, while the TAC in an August 2003 report indicates there were 584 vehicles per day. Both studies could have been right, as the volumes were conducted at different locations along Woodside Lane, with the higher volume count at a point where more homes were served than the lower volume count.

While keeping Woodside Lane open to traffic, is a workable option, the poor sight line to the west of the hospital and absence of sidewalks and its steep downgrade does make outbound and inbound traffic problematic. The proposal to allow only inbound traffic from Woodside Lane appears to be difficult to implement. We prefer the Option 2 strategy with the existing

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Woodside Lane corridor retained in its current configuration. Woodside Lane should remain available for emergency access and pedestrian/bicycle access to Hospital Road.

Grove Street at its intersection with Summer Street and Massachusetts Avenue likely meet signal warrants today. However, given the spacing between Grove Street and the Brattle/Hospital Road signal, it may be most appropriate to consider sight line improvements and possibly a pedestrian-only activated signal at Grove Street, if it meets warrants for signalization.

The Proponent's proposed sidewalk improvements on the north side Summer Street should be extended to the intersection of Oak Hill Drive, at minimum. Hospital Road should have a sidewalk at least on the east side.

We recommend a free shuttle service be provided between site and the Alewife T Station to reduce vehicle trip making. The service should have at least three stops on Hospital Road -- on both sides of its intersection with Summer Street, in the vicinity of the Medical Office Building and at the top of the hill toward Woodside Lane with minimum 15 minute service during the AM and PM peak periods. Route 67 provides off-peak service.

We do not find any significant problems with the traffic analyses performed. The results of both access options are reasonable, but should be tweaked to reflect the minor change in trip assignments illustrated on the attached display. In either access scenario, the Grove Street and Oak Hill Drive approaches with Summer Street remain congested during peak hours. Both Options 1 and 2 increase peak period queues on Summer Street compared to the No-Build alternative, but queuing in both cases is manageable, as the intersection levels of service at the signalized intersection of Summer Street at Brattle Street/Hospital Road are expected to be acceptable, lower than capacity, during peak periods.

Warrants for a possible pedestrian signal at the Grove Street intersection with Summer Street should be evaluated during the Special Permit phase. This may be the first step in advance of full signalization at this location, if signal warrants are met. Such a signal would enhance pedestrian access between the site and Arlington High School and minimize disruption to traffic on the Summer Street corridor. Its timing should be coordinated with the Brattle/Summer (Hospital Road) and Cutter Hill Road/Summer signals. This could be the first step in potential full signalization of this intersection.

Traffic calming measures should be provided on the Oak Hill Drive corridor to reduce speeding. Such measures should be committed to in concert with neighbors during the Special Permit Review process.

The details of other potential sidewalk enhancements that may be directly related to pedestrian travel patterns developed by this site (i.e., travel patterns to nearby schools) should be provided during the Special Permit review process.

Please feel free to contact me and refer to the attached presentation for illustrations of the peer review process, findings, and recommendations. FST sincerely appreciates the opportunity to provide these services on behalf of the TAC.

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Very truly yours,

FAY, SPOFFORD & THORNDIKE

By

Gary L. Hebert, P.E., PTOE
Vice President

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Attachment::Peer Review Presentation 9/14/04